

### **REMARKS**

Claims 1, 8, 15, 19, 29 and 30 are amended, no claims are canceled, and no claims are added; as a result, claims 1-30 are now pending in this application.

#### **§103 Rejection of the Claims**

Claims 1, 4-5, 8-24 and 27-30 were rejected under 35 USC § 103(a) as being unpatentable over Schmidt (U.S. 6,278,481) in view of Kusaba et al. (U.S. 5,986,284).

Claim 2 was rejected under 35 USC § 103(a) as being unpatentable over Schmidt in view of Kusaba et al., and further in view of Komori et al. (U.S. 6,255,690).

Claim 3 was rejected under 35 USC § 103(a) as being unpatentable over Schmidt in view of Kusaba et al., and further in view of Ross (U.S. 5,241,412).

Claims 6-7 and 25-26 were rejected under 35 USC § 103(a) as being unpatentable over Schmidt in view of Kusaba et al. and further in view of Kempainen (CMOS Image Sensors: ECLIPSING CCDs in Visual Information?, [www.ednmag.com](http://www.ednmag.com), October 9, 1997).

#### **Reservation of the Right to Swear Behind References**

Applicant maintains its right to swear behind any references which are cited in a rejection under 35 U.S.C. §§102(a), 102(e), 103/102(a), and 103/102(e). Statements distinguishing the claimed subject matter over the cited references are not to be interpreted as admissions that the references are prior art.

#### **'103 Rejection of the Claims**

Obviousness is tested by "what the combined teaching of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 878 (CCPA 1981)). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination."

*ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And “teachings of references can be combined only if there is some suggestion or incentive to do so.” *Id.* (emphasis in original). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Applicant respectfully traverses the rejections since the references fail to establish the elements of the claims, and further that the Office Action fails to provide a legally sufficient motivation to selectively combine the references.

*Claims 1-7, 29, 30*

Applicant cannot find in Schmidt in view of Kusaba the combination of elements of claim 1, including a patterned conductive layer adapted to electrically interconnect areas of the monolithic substrate other than the array of non-volatile memory cells, the patterned conductive layer including: an unpatterned level of protective material fabricated over the array of non-volatile memory cells for blocking the light received by the CMOS image sensor so that the trapped charged is not erased from exposure to the light, as recited in claim 1, as well as the other independent claims. The dependent claims contain additional features to their respective patentable base claims.

Furthermore, Applicant respectfully submits that the Office Action fails to provide a legally sufficient motivation to combine the references. According to the Office Action, “Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Schmidt by the teaching of Kusaba et al. in order to prevent incident light from contacting to the charge stored in the memory. This makes the deterioration of image quality due to smear and dark current is eliminated. Therefore the image quality is increased. Further, the cost and size of the camera are reduced.” Page 3, Office Action. Applicant cannot find any objective support in the references for this assertion.

Applicant submits that this unsupported assertion is a conclusionary statement, which fails to provide any objective evidence legally establishing a case of obviousness. According to *In re Sang Su Lee*, “there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant.” *In re Lee*, 61 USPQ2d 1430

(Fed. Cir. 2002), *citing In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988). Furthermore, the "factual question of motivation is material to patentability, and could *not* be resolved on *subjective belief and unknown authority*." (Emphasis Added). *In re Sang Su Lee*, 61 USPQ2d 1430 (Fed. Cir. 2002). Applicant submits that the Examiner's conclusion is based on a subjective belief and unknown authority, since no art or objective teaching was cited.

In addition, the Examiner notes that the phrase "adapted to" is used in claim. This phrase is interpreted by the Examiner to be synonymous with "capable of". The Examiner concludes that a prior art device may be applied against the claimed device as long as the prior art device is capable of being "electrically interconnect areas of the monolithic substrate other than the array of non-volatile memory cells," even though it does not disclose it as so.

Applicant has amended the claims to remove the phrase "adapted to". Thus, a prior art device may not be applied against the claimed device where the prior art device is capable of being "electrically interconnect areas of the monolithic substrate other than the array of non-volatile memory cells," but does not disclose it as so.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143. The Examiner must avoid hindsight. *In re Bond*, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). Applicant respectfully submits that the examiner may be improperly relying on the teachings of the present application for a motivation to combine Schmidt and Kusaba. Specifically, applicant can not find where Schmidt or Kusaba describe using a patterned conductive layer as both a light shield for the non-volatile memory and as an interconnect between other electrical devices on the substrate. (See page 10, lines 3-16 of the present application for a disclosure of the present claimed invention.)

Schmidt does not teach a light shield. Also, the "patterned conductive layer" that the Examiner alleges to be implied by Schmidt is in no way related to the structure of the claimed device of the present application. Kusaba does not teach interconnects made from the same layer as the light shield. For example, Kusaba teaches a conductive light-shielding protective wiring layers 4a and 4b made of Al that are respectively formed on the EEPROM 2 and the random circuit 3. The protective wiring layers 4a and 4b function as light-shielding films covering

predetermined regions corresponding to the EEPROM 2 and the random circuit 3. This structure prevents light from entering a portion below the covered region. (See column 3, lines 1-8 of Kusaba.) Accordingly, Schmidt and Kusaba do not provide a teaching or suggestion to make the invention of the present claims.

Only by using the present disclosure as a template and picking pieces of Schmidt and Kusaba can the presently claimed invention be rejected as obvious in view of Schmidt and Kusaba.

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985); MPEP § 2141.02. Applicant submits that the Office Action incorrectly fails to address the claims as a whole. The rejected claims, when properly considered as a whole, provide an invention which is not taught in Schmidt or Kusaba.

#### *Claims 8 - 14*

Applicant cannot find in Schmidt in view of Kusaba the combination of elements of independent claim 8, including a patterned conductive layer adapted to electrically interconnect areas of the single integrated circuit other than the array of non-volatile memory cells, the patterned conductive layer including: a level of protective material fabricated over the non-volatile memory unit for blocking the light received by the CMOS imager, as recited in claim 8. Claims 9 - 14 depend from claim 8 and hence contain additional limitations to a patentable base claim 8.

Furthermore, Applicant respectfully submits that the Office Action fails to provide a legally sufficient motivation to combine the references to reject claim 8. Applicant submits that the Examiner's conclusion is based on a subjective belief and unknown authority, since no art nor objective teaching was cited.

Applicant respectfully submits that the examiner may be improperly relying on the teachings of the present application for a motivation to combine Schmidt and Kusaba.

Specifically, applicant can not find where Schmidt or Kusaba describe using a patterned conductive layer as both a light shield for the non-volatile memory and as an interconnect between other electrical devices on the substrate. Schmidt does not teach a light shield. Kusaba does not teach interconnects made from the same layer as the light shield. Accordingly, Schmidt and Kusaba do not provide a teaching or suggestion to make the invention of claim 8. Only by using the present disclosure as a template and picking pieces of Schmidt and Kusaba can the presently claimed invention be rejected as obvious in view of Schmidt and Kusaba.

Moreover, it appears that the examiner is relying on the fact that Kusaba uses a metal for its light shield, and then use of such a metal for electrically interconnecting areas of the single integrated circuit other than the array of non-volatile memory cells is obvious. Applicant can not find where in the present record an objective teaching of the claim 8 feature, a patterned conductive layer that electrically interconnects areas of the single integrated circuit other than the array of non-volatile memory cells, the patterned conductive layer including: a level of protective material fabricated over the non-volatile memory unit for blocking the light received by the CMOS imager, is suggested or taught.

Rejected claims 8-14, when properly considered as a whole, provide an invention which is not taught in Schmidt or Kusaba. That is, neither Schmidt or Kusaba suggest using Kusaba's metal layer to electrically interconnect areas of Schmidt's device.

#### *Claims 15 - 18*

Applicant cannot find in Schmidt in view of Kusaba the combination of elements of independent claim 15, including a patterned conductive layer adapted to electrically interconnect areas of the single integrated circuit, the patterned conductive layer including: a level of protective material fabricated over the non-volatile memory unit for blocking the light received by the CMOS imager, as recited in claim 15. Claims 16 - 18 depend from claim 15 and hence contain additional limitations to a patentable base claim 15.

Furthermore, Applicant respectfully submits that the Office Action fails to provide a legally sufficient motivation to combine the references to reject claim 15. Applicant submits that these unsupported assertions are conclusory statements, which fail to provide any objective evidence legally establishing a case of obviousness. Applicant submits that the Examiner's

conclusion is based on a subjective belief and unknown authority, since no art nor objective teaching was cited.

Applicant respectfully submits that the examiner may be improperly relying on the teachings of the present application for a motivation to combine Schmidt and Kusaba. Specifically, applicant can not find where Schmidt or Kusaba describe using a patterned conductive layer as both a light shield for the non-volatile memory and as an interconnect between other electrical devices on the substrate. Schmidt does not teach a light shield. Kusaba does not teach interconnects made from the same layer as the light shield. Accordingly, Schmidt and Kusaba do not provide a teaching or suggestion to make the invention of claim 15. Only by using the present disclosure as a template and picking pieces of Schmidt and Kusaba can the presently claimed invention be rejected as obvious in view of Schmidt and Kusaba.

Moreover, it appears that the examiner is relying on the fact that Kusaba uses a metal for its light shield, and that use of such a metal for electrically interconnecting areas of the single integrated circuit other than the array of non-volatile memory cells is obvious. Applicant can not find where in the present record an objective teaching of the claim 15 feature, a patterned conductive layer that electrically interconnects areas of the single integrated circuit, the patterned conductive layer including: a level of protective material fabricated over the non-volatile memory unit for blocking the light received by the CMOS imager, is suggested or taught.

Applicant submits that the Office Action incorrectly fails to address the claims as a whole. Rejected claims 15-18, when properly considered as a whole, provide an invention which is not taught in Schmidt or Kusaba. That is, neither Schmidt or Kusaba suggest using Kusaba's metal layer to electrically interconnect areas of Schmidt's device.

#### *Claims 19-26*

Claims 19-26 are believed to be allowable for at least substantially similar reasons as stated above with regard to claim 1.

#### *Claims 27-28*

Claim 27 recites in part, "fabricating a light blocking and patterned electrically conductive layer over the array of non-volatile memory cells such that the light blocking and

patterned electrically conductive layer blocks light from the array of non-volatile memory cells and provides electrical interconnects on the integrated circuit.” This feature is not taught or suggested in Schmidt or Kusaba. Specifically, neither Schmidt or Kusaba teach fabricating a layer that is both light blocking and electrically conductive to form electrical interconnects. Applicant incorporates the arguments made above as support for the allowability of claims 27-28.

Therefore, with the amendment to the claims and for the reasons set forth above, it is believed that the rejections of the claims under 35 USC § 103 have been overcome. The Examiner is respectfully requested to reconsider each of the rejections of the pending claims.

**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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1d May '04

By

  
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 19th day of May, 2004.

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